MODIS TECHNICAL TEAM MEETING

March 16, 1995

The MODIS Technical Team Meeting was chaired by Vince Salomonson. Present were Locke Stuart, Dorothy Hall, David Herring, Dick Weber, John Bauernschub, Bruce Guenther, Bill Barnes, Wayne Esaias, Harry Montgomery, Steve Ungar, Joann Harnden, Barbara Putney, Ed Masuoka, Al Fleig, and Yoram Kaufman.

1.0 SCHEDULE OF EVENTS

March 24	SBRC Quarterly Management Review
April 5-7	MODLAND Workshop
April 11-13	EDC Land DAAC Advisory Panel
April 15	Quarterly Reports Due to Barbara Conboy
April 18-19	Science Software Integration and Test Workshop
April 28	Level 2 Software Integration Review
April 30 - May 1	CEOS Meeting -- Best Western Hotel, Lanham, MD
May 2	MODIS Calibration Working Group -- Marriott Hotel
May 3 - 5	MODIS Science Team Meeting -- Marriott Hotel, Beltsville

2.0 MINUTES OF THE MEETING

2.1 MODIS Project Reports

Weber reported that the electronics are now working well on the MODIS Engineering Model (EM)--the noise is down to about 1 count. Weber stated that there are still some minor problems. The EM meets the signal-to-noise specification for most bands.

Weber told the Team that the initial optics measurements are questionable. Further optical testing is required to characterize the system and isolate the problems. Weber said that the EM will soon be moved into the vacuum chamber for thermal vacuum testing. SBRC plans to test the instrument at three temperatures--285K, 305K, and 315K. Montgomery stated that he is concerned about the thermal band algorithm and would like the instrument to be calibrated at as many temperatures as possible.

2.1.1 MODIS Brochure Completed

Bauernschub announced that 10,000 copies of the MODIS Brochure were printed; copies are now being distributed to team members.

2.1.2 Video on the MODIS SRCA

Barnes showed a new 5-minute video on the MODIS SRCA. Copies will soon be sent to each Science Team Member.

2.1.3 Polarization Data

Barnes reported that Edward Knight and Tim Zukowski processed and examined one set of polarization data from SBRC, and have processed two other sets for examination (see Attachment 1). Set 1 contains data on bands 1 - 4 and band 8 at minus 45, 0, 35, and 45 degrees, respectively. Knight and Zukowski found that there is some noise in the raw data and some artifacts that are yet to be explained. They found that, taking peak-to-peak differences, all detectors in Set 1 have a polarization of less than 3 percent.

2.2 SDST Reports

Masuoka reminded the Team that there will be an all day Level 1A critical design review at GSC on March 29. Salomonson added that there will also be an all hands Mission to Planet Earth Meeting in the Building 8 Auditorium on March 30 with Dr. Charles Kennel speaking.

Putney reported that she is considering different scenarios for modeling of MODIS data. She told the Team that Hughes found that based on the initial processing concepts, there were 12,000 different computer executables per day in processing MODIS data. Putney and Masuoka are working on concepts with larger granule sizes and combinations of products to reduce the number of executables to under 1,000 per day.

2.2.1 MODIS Storage Volume

Masuoka reminded the Team that the MODIS data storage volume in the EOSDIS changed from 938 GB per day to 668 GB per day. After the meeting, Masuoka added that the daily volume of MODIS data stored in EOSDIS is still based on a 50 percent day / 50 percent night split. Masuoka points out that the day / night split didn't change. What did change was that SDST and MCST had incorrectly calculated volumes for 1A and 1B products based on a 100 percent day data rate and this was corrected in the database. However, the most significant reduction was in the size of the Classification Mask product from 200 GB per day to 3 GB per day when the responsibility for producing the mask went from MCST to Paul Menzel's team.

On a related note, at an AHWGP (Ad Hoc Working Group on Production) workshop, Bob Evans indicated that it would be OK not to archive the Level 2 Ocean Products provided the ESDIS could make selected ones on demand. Masuoka will pursue this issue further with Evans, Esaias, and Yun-Chi Lu.

2.2.2 Ghosting Analysis Model

Fleig reported that Shiyue Qiu finished refining the MODIS ghosting analysis model. Fleig stated that the MODIS Team can now use the model to remove analytical ghosting data for the EM from measurements to determine what, if any, additional problems there are due to spurious light effects. He added that Qiu's model may need to be refined further as properties of the instrument's surfaces are redefined in going from the EM to the protoflight model (PFM).

Fleig added that the model can be extended to characterize the scattering of light as well as ghosting. He concluded that, if correct engineering coefficients are provided, it appears to be possible to reduce or remove the ghosting effects in MODIS in the software.

2.2.3 Bowtie Effect

Fleig announced that SDST has MODIS data sets available, via file transfer protocol (ftp), illustrating the bowtie effect and how to remove it. This simulated data set has two classes--land and water--as well as a uniform global temperature of 72 degrees Fahrenheit and no atmosphere. Future simulated data sets will embody an atmosphere and increasingly more realistic cover types and instrument effects.

2.2.4 MODIS Test Data

Fleig told the Team that test data will be made available as needs arise. He asked Weber if it is possible for SDST to obtain from SBRC a full data stream taken by the EM. Weber responded affirmatively, but that it would probably be only about 2.5 minutes of data. Fleig said that 2.5 minutes of data fits SDST's need, and delivery as late as June or July is acceptable. Also, SDST is not concerned about what target the instrument is looking at. For now, SDST is mainly interested in obtaining a full data stream that looks like the data they will receive from EDOS (EOS Data and Operations System) after launch.

2.3 Ocean Group Reports

Esaias reported that Evans is preparing an update on the MODIS Level 3 grid for the upcoming issue of The Earth Observer. Evans and the Ocean Discipline Group accept the family of nested ISSCP grids from 140 km down to 1 km as the basic production grids for the AM platform instruments to facilitate intercomparison. However, they or SDST will provide tools which allow the IMS (Information Management System) to resample the production grids onto grids of different scales, perhaps with 30-km by 30-km cells, for distribution to the user community.

2.4 SCAR - B

Kaufman reported that progress is still being made in planning the SCAR - B (Smoke, Clouds, and Radiation - Brazil) campaign. The SCAR team met recently with Brazilian scientists and, Kaufman stated, there is strong collaboration between the two groups. There is still a problem, however, regarding hangar space for the ER-2. Otherwise, it has been cleared with the Brazilian government to participate in the campaign, along with the C-130.

3.0 ACTION ITEMS

3.1 Action Items Carried Forward

1. *Dave Diner & Ed Masuoka:* MODIS and MISR need to settle on a protocol(s) to deal with Level 1 and Level 2 data sets to be passed between the two teams to produce joint products. Report at the next SWAMP Meeting.
2. *Guenther:* Report the modeled results of the 1,000K source for SBRC's integration and alignment collimator to the Technical Team.
3. *Weber*: Work with SBRC to obtain MODIS test data. [Test data are forthcoming from SBRC.]
4. *Fleig and Ungar*: Interact with the group leaders prior to developing a MODIS data simulation plan for review at the next Science Team Meeting. [Work on this item is still in progress.]

3.2 Closed Action Items

1. *Herring*: Present the final Agenda and Science Team Meeting logistics at the next Technical Team Meeting. [The agenda has been approved by the Team Leader and is being sent out with invitations. Any subsequent changes will appear in the Agenda distributed at meeting registration.]
2. *MODIS Team*: Determine how, given the MODIS bowtie effect, MODIS images will be produced at launch. [Refer to section 2.3.3 above.]

4.0 ATTACHMENTS

NOTE: All attachments referenced below are maintained in MODARCH and are available for distribution upon request. Please contact David Herring, MAST Technical Manager, at (301) 286-9515, Code 920, NASA/Goddard Space Flight Center, Greenbelt, MD 20771 if you desire copies of any attachments.

1. Polarization Data -- Status of GSFC Analysis, by Ed Knight and Tim Zukowski